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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,889	02/04/2004	Mikko Rinne	037145-0701	3881

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FOLEY & LARDNER  
321 NORTH CLARK STREET  
SUITE 2800  
CHICAGO, IL 60610-4764

EXAMINER
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BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/771,889

Applicant(s)

RINNE ET AL.

Examiner

Ariel Balaoing

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 14 is objected to because of the following informalities: line 3 of the claim recites the limitation, "two different carrier bandwidths; narrowband and wideband".

This should read, "two different carrier bandwidths: narrowband and wideband".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7, 9-12, 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by MCGOVERN et al (US 2002/0142777 A1).

Regarding claim 1, MCGOVERN discloses a method for decreasing required radio spectrum in a communication system using variable bandwidth, the method comprising: dividing radio frequencies of the communication system into a wideband channel radio frequency and narrowband channel radio frequencies (paragraph 11, 12); and communicating user data using both the wideband channel radio frequency and the narrowband channel radio frequencies (paragraph 11, 12, 21, 27, 28).

Regarding claim 2, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein a higher

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frequency re-use factor is applied to said narrowband channel radio frequencies (paragraph 23).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein at least in some cells of the communication system both the narrowband channel radio frequencies and the wideband channel radio frequency are allocated so that the narrowband channel radio frequencies are used to extend cell range (paragraph 22, 23).

Regarding claim 4, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband channel radio frequencies are divided among adjacent communication cells in such a way that adjacent cells are using different narrowband channel radio frequencies (paragraph 22, 23).

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband channel radio frequencies are located outside the wideband channel (paragraph 13; wideband and narrowband channels are provided using the entire bandwidth available, with wideband and narrowband channels available together).

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband channel multiple access method incorporates spreading as a means to implement spectrum sharing between adjacent cells (paragraph 3, 13, 22, 23).

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband channel radio frequencies are located inside the wideband channel radio frequency (paragraph 13, 22).

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses further comprising transmission of communication scheduling information using a narrowband channel radio frequency (paragraph 20-22).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein scheduling information includes terminal identity for a terminal that will use a channel (paragraph 20-22).

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein use of the wideband channel radio frequency is coordinated (paragraph 21-23).

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband channel radio frequencies are assigned to different communication cells (paragraph 22-23).

Regarding claim 20, MCGOVERN discloses a device (102-Figure 1) operable in a wireless communication environment and configured to utilize variable bandwidth, the device comprising: a radio interface configured to communicate with base stations (104,

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106-Figure 1) in a wireless communication environment (paragraph 21-23); and a processor (108-Figure 1) coupled to the radio interface, the processor providing commands to modulate at least two transmission and receive bandwidths: wideband and narrowband (paragraph 22-23).

Regarding claim 21, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carriers are inside a full bandwidth channel (paragraph 13; wideband and narrowband channels are provided using the entire bandwidth available, with wideband and narrowband channels available together).

Regarding claim 22, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carriers are outside a full bandwidth channel (paragraph 13, 22).

Regarding claim 23, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carrier or narrowband carriers outside the full bandwidth channel implement spreading (paragraph 3, 13, 22, 23).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over MCGOVERN et al (US 2002/0142777 A1) in view of ROSENER et al (US 2002/0028655 A1).

Regarding claim 8, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, MCGOVERN does not expressly disclose wherein at least one of the communication cells includes a repeater configured to operate using both wideband channel radio frequencies and narrowband channel radio frequencies. ROSENER discloses wherein at least one of the communication

cells includes a repeater configured to operate using both wideband channel radio frequencies and narrowband channel radio frequencies (paragraph 42, 95, 129).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify MCGOVERN to include a repeater with wideband and narrowband capabilities, as taught by ROSENER, as this allows greater flexibility in a multiband system.

8. Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over MCGOVERN et al (US 2002/0142777 A1) in view of CARNEY et al (US 5,592,480).

Regarding claim 13, MCGOVERN further discloses a wireless communication system using variable bandwidth to increase re-use of frequency channels in the wireless communication system, the system comprising: a mobile station having a receiver and a transmitter (paragraph 17), the receiver and transmitter being configured to adaptively sample frequency and bandwidth (paragraph 27); and a base station having a receiver and a transmitter (paragraph 21, 22). However, MCGOVERN does not expressly disclose wherein the receiver and transmitter being configured to adaptively sample frequency and bandwidth. CARNEY discloses wherein the receiver and transmitter being configured to adaptively sample frequency and bandwidth (abstract). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify MCGOVERN to allow channel sampling at the basestation, as taught by CARNEY, as this eliminates the need to reconfigure the basestation when different types of wireless signaling must be accommodated.

Regarding claim 14, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein communication between said mobile station and said base station can take place utilizing at least two different frequency carrier bandwidths; narrowband and wideband (paragraph 11, 12, 21, 27, 28).

Regarding claim 15, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein narrowband carriers are used in communication between the mobile station and base station to enable higher re-use of frequency channels without multiplying operator spectrum requirements (abstract; paragraph 22, 23).

Regarding claim 16, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carriers are outside a full bandwidth channel (paragraph 13; wideband and narrowband channels are provided using the entire bandwidth available, with wideband and narrowband channels available together).

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carrier or narrowband carriers outside the full bandwidth channel implement spreading (paragraph 3, 13, 22, 23).

Regarding claim 18, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. MCGOVERN further discloses wherein the narrowband carriers are inside a full bandwidth channel (paragraph 13, 22).

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9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over MCGOVERN et al (US 2002/0142777 A1) in view of CARNEY et al (US 5,592,480) as applied to claim 14 above, and further in view of MOORE (US 6,573,869 B2).

Regarding claim 19, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of MCGOVERN and CARNEY does not expressly disclose wherein the mobile station utilizes multiple antennas. MOORE discloses wherein the mobile station utilizes multiple antennas (column 1:lines 11-31). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of MCGOVERN and CARNEY to include a mobile device with multiple antennas, as taught by MOORE, as this is sometimes needed for multi-band reception.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over MCGOVERN et al (US 2002/0142777 A1) as applied to claim 20 above, and further in view of WONG et al (US 6,323,823 B1).


Regarding claim 24, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, MCGOVERN does not expressly disclose wherein the device further comprises multiple antennas. WONG discloses wherein the device further comprises multiple antennas (abstract; Figure 3). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify MCGOVERN to include a base station with multiple antennas, as taught by WONG, as an adaptive antenna array can be used to adaptively focus channels to areas where communication is needed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
WILLIAM TROST  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

Ariel Balaoing  
Art Unit 2683  
Patent Examiner

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